



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Hirotooshi Otsuki.

Group Art Unit: 1733

Serial Number: 10/706,044

Examiner: Steven D. Maki

Filed: November, 13, 2003

For: PNEUMATIC TIRE

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Hirotooshi Otsuki residing at 2-4-58, Takamatsuminami,
Izumisano-shi, Osaka-fu, Japan duly deposes and says:

1. That he graduated from Department of Biotechnology and Applied Chemistry, Faculty of Engineering, Okayama University of Science, Okayama-ken, Japan, in the year 1992;
2. That since 1992, he has been employed in the capacity of Sumitomo rubber Industries, Ltd.;
3. That from 1999 he has been engaged in development for compound in developing rubber compositions for truck and bus.;
4. That he has read and is familiar with the instant application for United States Letters Patent and Office Action thereto mailed December 12, 2005.; and
5. That he has made experiments in order to show that when a compound which is obtained by adsorbing

N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine to silica is not comprised, ozone cracking resistance is poor, even if both of N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine and silica are comprised.

Experimental Example 1

The materials shown in Table 1 according to the composition shown in Table 1 were mixed in a 1.8 L Banbury mixer to obtain each unvulcanized sample rubber composition as the same manner. Then, each rubber composition formed in a thickness of 2 mm was vulcanized for 30 minutes at 150°C to obtain a vulcanized rubber composition. The obtained vulcanized rubber compositions were subjected to the rubber hardness and tensile tests and respectively evaluated in the same manner as Example 1 to 4 and Comparative Example 1 to 9 of the present specification. The results are shown in Table 1.

Also, each unvulcanized rubber composition in the form of tape was laminated as the thin film layer (width 50 to 70 mm, thickness 2 to 3.5 mm) to the buttress of a 295/75R 22.5 size unvulcanized tire for trucks and buses and then vulcanized. More specifically, the tire was prepared by the divisional method, in which the standard sidewall rubber in the form of tape and two kinds of the unvulcanized rubber composition were laminated on one unvulcanized tire. Using each obtained vulcanized tire, evaluation of ozone cracking resistance and coloring resistance were conducted in the same manner as Example 1 to 4 and Comparative Example 1 to 9 of the present specification. The results are shown in Table 1.

Table 1

	Experimental Example 1
<u>Composition (parts by weight)</u>	
NR	35
BR	65
Carbon black	50
Silica	2
Zinc Oxide	3
Stearic Acid	2
Antioxidant C	4
Aroma Oil	5
Sulfur	1
Vulcanization accelerator NS	1.5
<u>Properties</u>	
Hs	56
Hs after Aging	60
Modulus 200 % (MPa)	5.4
TB (MPa)	18.5
EB (%)	550
Ozone cracking resistance	3.5
Coloring Resistance	○

NR: RSS #3

BR: BR1220 available from Zeon Corporation

Carbon black: Carbon N330 available from Showa Cabot Co., Ltd.

Silica: (CTAB absorption amount: 165m²/g)

Antioxidant C: Antioxidant 35

(N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine, molecular weight: 296.4) available from Seiko Chemical Co., Ltd.

Aroma oil: Process X-14D available from Japan Energy Corporation

Sulfur: fine powder sulfur 200 mesh available from Tsurumi Chemicals Co., Ltd.

Vulcanization Accelerator NS: Nocceler NS

(N-tert-butyl-2-benzothiazylsulfenamide), available from Ouchi Shinko Chemical Industrial Co., Ltd.

Result and Discussion

In Experimental Example 1 of Table 1, when comparing Example 2 in Table 1 of the present specification, which differs adsorbing N-(1-methylheptyl)-N'-phenyl-p-phenylenediamine to silica beforehand, ozone cracking resistance is poor.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

This 21st day of April, 2006

by Hirotoishi Otsuki
Hirotoishi Otsuki

We, the undersigned witnesses, hereby acknowledge that Mamoru Uchida is personally known to us and did execute the foregoing Declaration in our presence on:

Date: April 21, 2006 Witness Yutaka Sakon

Date: April 21, 2006 Witness Yoshiaki Someya